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AUTHOR Shellen, Wesley N.
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ABSTRACT

This study was designed to test the effects of message summaries on the recall of main points of an informative message. Two different types of summary techniques, a mnemonic and a traditional type, were identified and compared with each other and with a third treatment involving no summaries. One hundred and eleven volunteer subjects were randomly assigned to the three treatments and were given the "Goyer Organization of Ideas Test," which was used as a covariate. Although previous studies showed no effect of summaries on recognition as measured by multiple-choice tests, it appears that summaries are a significant aid to recall of the main points of a message. Further, some summaries seem to be more effective than others, as shown by the significantly higher recall scores of subjects who heard the mnemonic summaries versus subjects who heard the traditional summaries. (Author/RB)

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THE EFFECTS OF MESSAGE SUMMARIES ON THE IMMEDIATE FREE RECALL OF MAIN POINTS

Wesley N. Shellen
University of Montana

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Abstract

This study was designed to test the effects of message summaries on the recall of main points of an informative message. Two different types of summary techniques, a mnemonic and a traditional type, were identified and compared with each other and with a third treatment involving no summaries. The mnemonic summary type was defined as an initial and concluding summary which included a listing of the main points of the message plus a "chunking" cue to aid subjects in remembering the main points. (In this experiment, it was a hint that the points were arranged in alphabetical order). The traditional summary type included only a listing of the main points in the initial and concluding summaries without the memory cue.

One hundred and eleven volunteer subjects were randomly assigned to the three treatments and were given the *Goyer Organization of Ideas Test* which was used as a covariate. After hearing the message (a speech on seven types of group participants who interfere with a group discussion), subjects were asked to fill out a recall test of the seven main points. These recall data were subjected to analysis of covariance.

Although previous studies showed no effect of summaries on *recognition* as measured by multiple-choice tests, it appears that summaries are a significant aid to *recall* of the main points of a message. Further, some summaries seem to be more effective than others as shown by the significantly higher recall scores of subjects hearing the mnemonic summaries versus subjects who heard the traditional summaries.

This study was designed to test the effects of message summaries on the recall of main points of an informative message. Two different types of summary techniques, a mnemonic and a traditional type, were identified and compared with each other and with a third treatment involving no summaries. The mnemonic summary type was defined as an initial and concluding summary which included a listing of the main points of the speech plus a "chunking" cue to aid subjects in remembering the main points. (In this experiment, it was a hint that the points were arranged in alphabetical order.) The traditional summary type included only the listing of the main points in the initial and concluding summaries without the memory cue.

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Two studies have been reported recently in which retention or comprehension of information from brief speeches was not significantly different whether the speeches included initial summaries, concluding summaries, both summaries or no summaries.[1] Multiple choice tests were used in both studies as criterion measures of comprehension or retention. Such tests are so often employed in studies of message variables in communication research that their appropriateness is rarely questioned. The evidence from experiments in the psychology of learning clearly distinguishes among dependent variables designed to measure comprehension or retention, raising an important and interesting question as to how one should interpret the findings of the recent experiments on the effect of message summaries.

Multiple choice tests are essentially tests of the recognition memory of subjects for information provided or suggested by the speech. Learning theorists contrast such recognition tasks with recall tasks which require search and retrieval of information from memory without the aid or distraction of item choices such as are found on multiple choice tests. This distinction is important because recognition and recall measures are not entirely equivalent and

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[1] Frederick H. Turner, Jr., "The Effect of Speech Summaries on Audience Comprehension," The Central States Speech Journal, XXI (1970), 24-29; James F. Vickrey, Jr., "An Experimental Investigation of the Effect of 'Previews' and 'Reviews' on Retention of Orally Presented Information," The Southern Speech Journal, XXXVI (1971), 209-219.

are often affected by different experimental variables.[2] Recognition learning (the type measured by multiple choice tests) is dependent primarily on only two factors: the familiarity of the memory traces and the response biases of the experimental subjects. The organization of stimulus materials is not critical to recognition memory. On the other hand, organization and relationships within the stimulus materials do critically affect recall performance.[3] Therefore, it would not seem surprising to find that subjects performed equally well on a multiple choice test over a speech whether it had summaries or not. To discover whether summaries help people retain material from a speech would require a test of recall rather than recognition. Indeed, Lee used both a test of recall of main points and a multiple choice test in his experiment on the effects of written prose structure on learning. The high level of structure (which included initial summaries, transitions, and concluding summaries) was superior to lower levels of structure in influencing the recall scores, but made no difference with the multiple choice test scores.[4]

Other than in the classroom, it is rare that people

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[2]Support for this distinction can be found in Walter Kintsch, Learning, Memory, and Conceptual Processes (New York: John Wiley and Sons, Inc.), 1970, Chapter 5.

[3]Ibid., pp. 243-67.

[4]Wayne Lee, "Supra-Paragraph Prose Structure: Its Specification, Perception, and Effects on Learning," Psychological Reports, XVII (1965), 135-44.

are given anything even approximating a multiple choice test over a message. But people often attempt to recall a message they heard if they find some need for the information or if someone who didn't hear the speech asks them to tell what the speaker said. Initial and concluding summaries supposedly facilitate recall by emphasizing and repeating the main points of a message. In an experiment on free recall of categorized word lists, Cohen has shown that subjects either recall a high percentage of words from a category or none at all.[5] Therefore, the ability to remember main points (superordinate categories) of a message is hardly a trivial accomplishment since the main points may be an important aid in recalling the subordinate content of the message. One question for the present study was whether summaries in a message really help subjects to remember the main points. The first hypothesis was that subjects will recall more of the main points from a message containing an initial and concluding summary than subjects who hear the message without summaries.

Another finding consistent in the literature of learning theory is that if a number of items of information can be "chunked" into smaller and familiar units, they are easier to remember than if all the items have to be stored

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[5]Burton H. Cohen, "Some-or-None Characteristics of Coding Behavior," Journal of Verbal Learning and Verbal Behavior, V (1966), 182-87.

individually in memory.[6] It is this process of "chunking" which allows us to easily remember the colors of the rainbow by remembering the name ROY G. BIV, or the notes of a musical staff when recoded into FACE and "Every Good Boy Does Fine" (E G B D F). Such techniques are called mnemonic devices and are occasionally used by speakers to emphasize the main points of their speeches and to make them easier to remember. If the principle of "chunking" can be applied to the recall of messages, the strategy of using a mnemonic device in speech summaries should be an effective technique. This rationale led to the second hypothesis that subjects will recall more of the main points from a message containing summaries which include a mnemonic device than when the message contains traditional summaries which only list the main points.

METHOD

Preparation of Stimulus Messages

The basic experimental message was an eighteen-minute speech which described seven types of participants whose behavior interferes with a group discussion. Each type was given a name in the speech (e.g., "Advocate-type," "Bashful-

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[6]Much of what we know about this recoding or "chunking" process comes from the work of George A. Miller, the rationale for which is summarized in his now classic paper, "The Magical Number Seven, Plus or Minus Two: Some Limits on our Capacity for Processing Information," Psychological Review, LXIII (1956), 81-97.

type," etc.) and the supporting material included a description of each type, examples of how the behavior interferes with the group, and suggested methods by which a discussion leader can control the undesirable behavior. Each type of participant constituted a main point in the speech. Signpost transitions were used between each of the seven main points.

Mnemonic and traditional initial and concluding summaries were written for the speech. The mnemonic summaries were as follows:

> /Initial Summary/ . . . A wise leader can learn them as easily as he learned his A B C's--A B C D E F G. A stands for the Advocate-type, B is the Bashful-type, C is the Critic-type, D is the Dictator-type, E is the Expert-type, F is the Funnyman-type, and G is the Gabby-type. I will go into each type briefly and explain how to spot each of them and how to handle them.
>
> . . . . . .
>
> /Concluding Summary/ . . . Those are the seven types of group participants who can spell real trouble for a group unless the leader remembers his A B C's: A for Advocate-type; B for Bashful-type; C for Critic-type; D for the Dictator-type; E for Expert-type; F for Funnyman-type; and G for the Gabby-type. . . .

The traditional summaries included everything except the "chunking" cue that the points were alphabetical:

> /Initial Summary/ . . . A wise leader learns to recognize them by their characteristics. They are called the Advocate-type; the Bashful-type; the Critic-type; the Dictator-type; the Expert-type; the Funnyman-type; and the Gabby-type. I will go into each type briefly and explain how to spot them and how to handle them.
>
> . . . . . .

> [Concluding Summary] . . . Those are basically the seven types of potential trouble-makers in a group. Knowing them and how to handle them can help you as a leader run a good meeting. You will want to recognize the Advocate-type; the Bashful-type; the Critic-type; and the Dictator-type; the Expert-type; the Funnyman-type; and the Gabby-type. . . .

The speech including both mnemonic and traditional summaries was recorded on audio tape by a female speaker. Instructions to subjects were recorded onto the tape by the experimenter. Three copies of the tape were processed from the master tape. The three tapes were cut and spliced to remove one or both of the initial and concluding summaries. The resulting stimulus messages were therefore identical except that one contained mnemonic summaries, one contained traditional summaries, and one contained no summaries.

General Procedures

In order to allow for random assignment, volunteer subjects were solicited from introductory communication classes at Ohio University. One hundred and eleven volunteers participated in the experiment, which was held in the evening. Subjects and treatments were both randomly assigned to three groups.

As the subjects arrived for the experiment, they were given instructions, test booklets, and answer sheets for the Goyer Organization of Ideas Test, Form S. The Goyer test was used as a covariate for additional control of individual subject variance in the experiment. The test

possesses several attributes making it a most appropriate covariate for this particular study. First, Thompson found that the Goyer test is an additive measure in experiments involving message structure but does not interact with any of the treatments.[7] Also, in addition to measuring the ability to organize, the Goyer test correlates highly with tests of lecture comprehension,[8] thus controlling for individual subject variability in relevant organization skills and listening skills.

Following the administration of the Goyer test, subjects then heard the recorded experimental message containing whichever treatment they were to receive. After the message, subjects were given a test sheet asking them to recall the exact name given by the speaker for each of the troublesome types of group participants (which were the main points of the message).

After handing in all tests, subjects were thanked for their participation and given a description of the rationale and hypotheses of the experiment. Copies of their scores on the Goyer test and the results of the experiment were distributed to the subjects several weeks later.

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[7]Ernest Thompson, "Some Effects of Message Structure on Listeners' Comprehension," Speech Monographs, XXXIV (1967), 51-57.

[8]Charles R. Petrie Jr., "What We Don't Know About Listening," The Journal of Communication, XIV (1964), 248-252.

Statistical Analysis of the Data

The data were analyzed in a one-way analysis of covariance design using the Goyer test as the covariate and the scores on the seven-item recall test as the dependent variable. The analysis of covariance was made using an Ohio University computer system main program called COVAR. Scheffé contrasts were used for *a posteriori* comparisons among means of the treatment groups.[9] All tests of significance were made at the .05 level of confidence for rejection of the null hypothesis.

RESULTS

The adjusted and unadjusted mean scores on the seven-item recall test for the subjects in each of the three cells are listed in Table I.

TABLE I

ADJUSTED AND UNADJUSTED MEANS ON THE SEVEN-ITEM RECALL TEST AND COVARIATE MEANS FOR THE THREE TREATMENT GROUPS

	Dependent Variable		Covariate	
Treatment	Adjusted means	means	means	n
Mnemonic Summaries	6.48	6.46	16.76	37
Traditional Summaries	5.62	5.78	18.25	36
No Summaries	4.53	4.39	15.74	38

[9] Roger E. Kirk, Experimental Design: Procedures for the Behavioral Sciences (Belmont, California: Brooks/Cole Publishing Company, 1968), p. 472.

The table appeared to show that the mean scores for recall of main points are in the direction predicted by the two hypotheses. The analysis of covariance confirmed this observation and is presented in Table II. The analysis shows that the effects of message summaries were significantly different for at least two or more treatment groups. Therefore, the analysis proceeded directly to comparisons among treatment groups.

TABLE II

ANALYSIS OF COVARIANCE OF SCORES ON THE RECALL TEST

Source	df	SS	MS	F
Message Summaries	2	70.57	35.28	33.86*
Error	107	111.51	1.04	
Total	109	182.08		

*$p < .05$

The first hypothesis involved the comparison of effects of summaries versus no summaries. Scheffé contrasts showed that both mnemonic and traditional summary treatments yielded significantly higher recall scores than the no summary treatment ($F = 66.56$, $p < .05$ for the contrast between mnemonic vs. no summary treatments; $F = 20.51$, $p < .05$ for the contrast between traditional vs. no summary treatments). Thus, the null hypothesis was rejected in favor of the

first hypothesis of the study showing that subjects will recall more of the main points from a message containing an initial and concluding summary than subjects who hear the message without summaries.

The second hypothesis involved the comparison of effects of the mnemonic summaries versus the traditional summaries. The comparison showed the mnemonic summaries yielded significantly higher recall scores than the traditional summaries ($F = 12.60$, $p < .05$). The null hypothesis was rejected in favor of the second hypothesis proposed in the study which predicted that subjects will recall more of the main points of a message containing summaries which include a mnemonic device than when the message contains traditional summaries which only list the main points.

DISCUSSION

The two hypotheses of the study were supported by the results. Although previous studies showed no effect of summaries on retention as measured by multiple choice tests, it appears that summaries do aid recall of the main points of a speech. Further, some summaries seem to be more effective than others as shown by the significantly higher recall scores of subjects hearing the mnemonic summaries versus the subjects who heard the traditional summaries.

When scoring the recall tests, an interesting phenomenon was observed. The subjects who heard the mnemonic

summaries not only recalled more points but also appeared to be recalling them in proper sequence. This was not often true for subjects in the other message treatment conditions. If anything, they tended to recall the last point of the speech first, typical of the recency effect in serial learning. The study was not designed to test hypotheses regarding order of recall but the observation is suggestive for future research. An appropriate hypothesis would be that mnemonic summaries are superior to traditional or no summaries in evoking recall of points in their appropriate order.

This study, of course, left many other questions still unanswered. It would be dangerous to conclude that summaries are good techniques solely because they aid listeners to recall the main points. If listeners find such summaries boring or didactic, speakers may have to sacrifice some attention in order to have their points remembered well by the audience. How much of a sacrifice is a question for further research.

The question raised by previous researchers, of whether both initial and concluding summaries are needed to facilitate recall or whether one or the other is sufficient, is still a viable question for further exploration. The present study only used both initial and concluding summaries in contrast with a treatment involving no summaries. If one or the other could be eliminated with no corresponding

reduction in recall, perhaps the repetitious nature of the message could be safely reduced.

The rationale for this study leaned heavily upon findings of learning theorists. It is often difficult to justify extending the results of psychological studies which use sentences, words, or even nonsense syllables as stimuli to apply to the complex and often uncontrollable phenomena which are involved in communicative messages. Therefore, it is encouraging to find results based upon a rationale which appears to hold for both learning and communication theories.

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